

Remarks

The claims have been amended to correct typographical errors and to incorporate definitions of "heterocyclyl" and "substituted" from the specification, as suggested by the Examiner. These amendments do not add new matter.

Election/Restriction

The Restriction Requirement mailed on June 26, 2002 restricted the claims into three groups. Group I, Claims 1-42, was directed to diazabicyclo[2.2.1]heptane compounds and compositions including the compounds. Group II, Claims 1-42, was directed to diazabicyclo[3.2.1]octane compounds and compositions including the compounds. Group III, Claims 1-42, was directed to compounds and compositions including the compounds that were not included in Groups I and II. Group IV, Claims 43-63 (cancelled in response to the Restriction Requirement) was directed to methods for treating a central nervous system disorder.

In response to the Restriction Requirement, Applicants elected Group III, and elected as a species compounds with a diazabicyclo[3.3.1]nonane core. Applicants cancelled the Group IV claims, and amended the remaining claims to specify that the compounds were diazabicyclononanes. Claims 5, 16, 26, and 37, which would have included diazabicycloheptanes, were cancelled. Claims 11 and 32, which also listed specific diazabicycloheptanes, were also cancelled. This amendment was significantly more than was required. As the claims as filed clearly indicated that the values for u, v, w and x are individually 0, 1, 2, 3 or 4, the Examiner was aware that Group III included far more than diazabicyclononanes. If further restriction was required, additional groups should have been listed in the restriction requirement.

Now, the Office Action suggests that the claims should be amended so that they are restricted to the elected species (compounds with a diazabicyclo[3.3.1]nonane core), or they will not be allowed. That suggestion appears to be contrary to USPTO practice. It is Applicant's understanding that upon allowability of a species, the Examiner is to re-search the non-elected species and determine whether the claim as a whole is allowable. To do otherwise would often require applicants in chemical cases to restrict claims to a single elected compound.

Upon indication of an allowable Species, Applicant respectfully reassert that the Examiner should then broaden the search to include the remainder of the elected Group. The Examiner is respectfully requested to provide support for this contrary position if it is to be maintained.

Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 1, 6, 12, 22 and 23 have been rejected under 35 U.S.C. § 112, second paragraph as indefinite. In particular, the Office Action objected to the use of the term “heterocycl” on the basis that it is unclear as to the array of the heteroatoms, size of the rings, and the nature of atoms as ring members. The Office Action further objected to the term “substituted,” with respect to “heterocycle, cycloalkyl and alkenyl, and also to the terms “substituent species” and “aromatic group-containing species” in Claim 6.

The claims have been amended as suggested by the Examiner to define the term “heterocycl” consistent with its definition in the specification as “saturated or unsaturated cyclic radicals containing one or more heteroatoms (e.g., O, N, S) as part of the ring structure and having two to seven carbon atoms in the ring. The claims have further been amended to define the term “substituted” as referring to heterocycl, aryl, heteroaryl, aralkyl, alkylaryl and the like radicals further bearing one or more substituent species G.

It is believed that these amendments overcome the rejections. Accordingly, Applicants respectfully request that the rejections be withdrawn in view of the amended claims.

Rejections Under 35 U.S.C. § 103 (a)

Claims 1-10, 12-31 and 33-42 have been rejected under 35 U.S.C. § 103 (a) as obvious in view of PCT WO 97/40049 to Czollner et al. Czollner teaches diazabicyclic compounds which require the presence of an aromatic group or a methyl group at position R22, which corresponds to an attachment to the nitrogen in the presently claimed diazabicyclic compounds that is not attached to Cy. The claims had previously been amended to define the group attached to this ring nitrogen as H, rather than R, and this amendment is still believed to obviate the rejection.

Czollner specifically requires that the substitution at R₂₂ is aryl, substituted aryl, methyl or substituted methyl, and not hydrogen. To clarify this, Applicants previously provided a translation of the definition of R₂₂ (from page 8, lines 1-9 of PCT WO 97/40049 to Czollner et al.):

wherein R₂₂ is

An unsubstituted or one substituted by one or more of F, Cl, Br, I, NO₂, NH₂, OH, alkyl, alkyloxy, CN, NC, or CF₃, CHO, COOH, COOalkyl, SO₃H, SH, S-alkyl groups equally or unequally substituted by two unsubstituted (hetero) aryl residues or

a methyl group substituted by two unsubstituted or substituted by one or more of F, Cl, Br, I, NO₂, NH₂, OH, alkyl, alkyloxy, CN, NC, or CF₃, CHO, COOH, COOalkyl, SO₃H, SH, S-alkyl groups or differently substituted phenyl group(s). (*emphasis added*)

As discussed previously, despite a wide variety of possible substituents that purportedly provide similar activity, Czollner provides absolutely no motivation to modify R₂₂ to be any substituents other than the specifically listed aryl or methyl groups, let alone H as instantly claimed.

The Examiner did not consider Applicants' previous discussion to be persuasive, and relied on the close structural similarity to maintain the rejection. (Office Action at page 4). To further distinguish over the cited art, Applicants provide the following additional evidence of the difference between the claimed compounds and those disclosed in Czollner.

PCT WO 00/44755 by Abbott (copy enclosed), with a priority date of January 29, 1999, shows several comparisons of the activity of specific compounds, including a diazabicyclo[4.2.1]nonanone (Examples 37 and 41), in which the N-methyl compound has a Ki value about 10 fold greater than the N-H compound. The Abbott PCT application does not teach bicyclo[3.3.1]nonanes, and therefore did not directly compare bicyclo[3.3.1]nonanes substituted on a ring nitrogen with hydrogen versus methyl. However, by analogy, one can see that the difference between a ring nitrogen bonded to a hydrogen versus a methyl has a significant impact on the binding affinity of the compounds. That analogous (and significant) difference, coupled

with Czollner's lack of a teaching of an unsubstituted ring nitrogen at R22 (i.e., NH, as in the instantly claimed compounds), further demonstrates the non-obviousness of the claimed compounds versus the compounds disclosed in Czollner.

Accordingly, Applicants respectfully request that the obviousness rejection be withdrawn in view of the amended claims.

Conclusion

Applicant respectfully urges that upon entry of the above amendment, claims 1-4, 6-10, 12-25, 27-31, 33-36, and 38-42 are in condition for allowance. Applicant also respectfully urges that upon indication of allowable subject matter, the Examiner consider the full scope of the pending claims, rather than simply the elected species, as appropriate.

If the Examiner believes that any issues remain unresolved, Applicant respectfully requests that Examiner contact the undersigned attorney.

Respectfully submitted,



David S. Bradin
Registration No: 37,783
Attorney for Applicant

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WOMBLE CARLYLE SANDRIDGE & RICE, PLLC

P.O. Box 7037
Atlanta, GA 30357-0037
(919) 484-2382 (Telephone)
(919) 484-2084 (Facsimile)
Docket Number: T103 1421.1